

SCG064-P07

会場:コンベンションホール

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複雑な振動流下におけるベッドフォーム Bedform under complex oscillatory flow

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Some types of patterned three-dimensional ripples have been reported from modern and geological shallow-marine environments. Laboratory experiments (e.g., Silvester, 1974; Jan and Lin, 1998) have shown that ripples with polygonal crest line develop under circular oscillatory flow, which is induced by oblique-standing waves, and it has been considered that patterned three-dimensional ripples may develop under complex oscillatory flow by interference waves. However, partially because of limitation of experimental equipments, relationship between patterned three-dimensional ripples and their formative conditions has not been well revealed. Based on these backgrounds, this study examined bedforms under two-dimensional oscillatory flow with complex trajectory through an analogue laboratory experiment. This study employed a newly developed two-directional oscillatory bed, which generates two-dimensional oscillation by combining two one-dimensional sinuous oscillations perpendicular to each other. The phase lag between two oscillations, and the period and amplitude of each oscillation are controlled by computer program. By using two-directional oscillatory bed, a circular tray filled with sediment was oscillated in still water within a circular tank to generate relative motion between sand bed and oscillatory flow. The sediment tray is 100 cm in diameter and 2.5 cm in depth, and edge of the tray is taped off to hinder turbulence. The diameter and depth of water tank is 180 cm, and 60 cm, respectively. The experiment was conducted using fine sand with grain diameter of 0.2 mm.

キーワード: 三次元リップル, 実験, 二次元振動流, 二方向振動板装置

Keywords: experiment, three-dimensional ripples, two-dimensional oscillation, two-directional oscillatory bed